

Environmental Advisory Committee

Subcommittee Recommendations

EAC Subcommittee on Emission Reduction and Carbon Neutrality for the City of Laramie

February 2020

INTRODUCTION

In this document, we provide recommendations for municipal operations and community efforts to achieve a net zero emissions goal for the City of Laramie. The overall goal of “net zero” means that the city and the community will work to reduce current greenhouse gas emissions as much as reasonably possible, while also working to implement measures and changes to offset the remaining emissions that cannot be completely eliminated. These recommendations will work to make the *net* greenhouse gas emissions—including efforts from reduction, capture, and offset—as close to zero as is possible and feasible. Throughout this document, “emissions” refers to the emissions of the greenhouse gases (GHGe), including carbon dioxide, methane, and nitrous oxide.

We recognize that attaining a goal of net zero emissions is a complex process that will require working towards goals that are both broad and specific, goals that will require large changes in municipal operations and “low hanging fruit,” and goals that can be accomplished in the near- and long-term. To that end, we provide hierarchical and multi-faceted recommendations. Our Framework Recommendations consist of (1) establishing emission-related goals, (2) drafting a comprehensive emissions reduction plan, (3) performing regular emission assessments, (4) implementing outreach, (5) providing trainings, and (6) seeking funding. From these Framework Recommendations, we then outline more specific, Targeted Recommendations to better facilitate municipal emissions reductions in the short term.

1 FRAMEWORK RECOMMENDATIONS

Because Laramie currently lacks a protocol for managing emissions, we first recommend that the city government adopt a guiding framework and commit to actions for reaching a goal of net-zero emissions. To that end, our Framework Recommendations provide a structure for overall emission reduction, carbon neutrality, and sustainability.

1. **ESTABLISH GOALS:** We recommend that Laramie publicly establish 10-year (2030), 20-year (2040), and 30-year (2050) goals for municipal operations *and* community emissions reduction. To reach these goals, the municipality may wish to become affiliated with external groups (e.g., [climatemayors.org](https://www.climatemayors.org)) or adopt the goals of other cities in the U.S. Municipal operations should lead the way over the next two years, efforts that will ideally inspire and facilitate community endeavors.¹ We suggest the following goals:
 - 1.1. Laramie reduces emissions from municipal operations reported in the officially accepted FY 2018 emissions inventory levels according to the following timeline: 50% by 2030, 90% by 2040, and achieving net zero by 2050.

¹For example: <https://www.parkcity.org/departments/sustainability/community-municipal-carbon-footprint>

- 1.2. The surrounding community reduce emissions from those established in the forthcoming community-wide GHGe survey according to the following timeline: 30% reduction by 2030, 70% reduction by 2040, and achieving net zero by 2050.
2. **DRAFT COMPREHENSIVE PLAN:** We recommend developing a comprehensive municipal operations emissions reduction plan, followed by a separate community plan. The plan should include scope, objectives, specific goals, baselines, timelines and metrics, strategies and solutions. Cities across the U.S., including Austin,² Fresno,³ and Salt Lake City,⁴ have conducted similar comprehensive plans and serve as excellent examples. To accomplish this goal, we recommend building on current inventories, audits, and assessments already completed in Laramie and Albany County to develop an effective action plan (e.g., Honeywell audit). We further recommend that this comprehensive plan include potential avenues for reducing emissions, developing renewable energy sources, and enhancing carbon sequestration opportunities.
3. **PERFORM REGULAR EMISSION ASSESSMENTS:** We recommend reviewing and officially approving the baseline emissions inventory conducted for FY 2018. Following this baseline inventory, we recommend performing GHGe inventories on an annual or biennial basis to compare progress against the baseline inventory, demonstrate impact of policies and solutions, and adjust actions based on feedback. We recommend developing and implementing a standardized process to regularly collect data. To ensure that the emissions assessments are broadly known throughout municipal employees and citizens of Laramie, we recommend publishing the findings from the assessment within already existing and appropriate municipal reports, as well as making the assessment reports available and in an easy-to-understand format on the municipal website.
4. **IMPLEMENT OUTREACH:** We recommend that the City of Laramie initiate and support an “Emissions Reduction Community Network” to provide inspiration, guidance, and resources for emission reduction efforts by citizens and businesses. Specifically, we recommend that Laramie:
 - 4.1. *Create a landing page* on the municipal website where community members can access resources regarding the status of emissions in Laramie, steps they can take to reduce their emissions, and steps the city has taken to reduce emissions.
 - 4.2. *Facilitate group photovoltaic buys.* We recommend that Laramie help interested community members find one another and invite bids from solar installers. The equipment and installation for solar energy can be cost-prohibitive to some, but group solar purchases where equipment and labor are contracted in bulk can reduce the overall cost of photovoltaic systems. Ideally these bulk-buy opportunities will be facilitated quickly; current federal tax incentives phase out by 2022.
 - 4.3. *Create a marketing campaign to engage community members.* We recommend establishing a marketing campaign to reach the general public to educate the community and increase citizen buy-in regarding efforts for emissions reduction. Campaigns may include information on food waste reduction, effective composting, recycling, and energy efficiency. By partnering with the University of Wyoming, we can leverage relevant courses in marketing and student groups to

²<http://www.austintexas.gov/edims/document.cfm?id=269714>

³ <https://www.fresno.gov/darm/wp-content/uploads/sites/10/2016/11/F-2-Greenhouse-Gas-Reduction-Plan.pdf>

⁴ <http://www.slcdocs.com/slcgreen/CP0319.pdf>

facilitate development of a campaign as part of course content to minimize cost and maximize community benefit.

5. **PROVIDE TRAINING:** We recommend providing energy efficiency and emission reduction training to city personnel to help identify efficiency solutions and to build a culture of energy efficiency and emission reduction. Additionally, we recommend that the City of Laramie:
 - 5.1. Maintain annual membership in ICLEI⁵ and utilize training resources.
 - 5.2. Identify and pursue additional resources for training and education through partnerships with other cities across the U.S. (e.g., www.climatemayors.org).

6. **EXPLORE FINANCING:** We recommend identifying extra-municipality sources of funding for city projects to help reduce emissions. To that end, we recommend that the City of Laramie:
 - 6.1. Seek to partner with local businesses and the private sector.⁶
 - 6.2. Implement mechanisms to allow citizens to make voluntary donations towards emissions reductions initiatives (e.g., donations through utility bills).
 - 6.3. Utilize existing opportunities and contracts to pursue grants for infrastructure development and upgrades (e.g., Honeywell).

2 TARGETED RECOMMENDATIONS

Because emissions reduction initiatives require an extensive and multi-faceted approach, we have provided initial Targeted Recommendations in addition to our Framework Recommendations. Our recommendations take into consideration the areas where reductions can make the most impact according to the Laramie GHGe Inventory 2018 Report; our targeted recommendations primarily focus on waste generation, electricity, stationary combustion, and mobile combustion. We have prioritized actions that facilitate municipal emissions reductions in the short term while providing positive return on investment, where possible. As stated in the Framework Recommendations, we recommend the development of a comprehensive plan to identify and implement a complete list of emissions reduction actions; however, until such a plan is drafted the following targeted recommendations provide the city with a starting point.

1. **STREAMLINE PROCEDURES:** To better enable community members' efforts to reduce their carbon footprint, we recommend reviewing and adjusting all relevant ordinances, policies, and permitting procedures so as to streamline renewable energy and energy efficiency projects for individuals and businesses. Such actions may include, but are not to be limited to:
 - 1.1. Waiving or reducing permitting fees for solar installations as an incentive for participation.
 - 1.2. Offering templates of photovoltaic system configurations to streamline the permitting process.

2. **UPGRADE/REPLACE CURRENT FLEET VEHICLES:** We recommend that the City of Laramie develop and implement a "Green Fleet" purchasing policy wherein purchases of new fleet vehicles are mandated to be the lowest emission vehicle possible, with special effort made to purchase electric vehicles. The overall purpose of this policy is to reduce or eliminate (where

⁵ <http://icleiusa.org/about-us/who-we-are/>

⁶ <https://www.c2es.org/site/assets/uploads/2018/09/mayors-leading-way-on-climate-2018.pdf>

possible) the dependence on gasoline and diesel engines in fleet vehicles. Such a policy has the benefit of providing more immediate return on investment. We recommend that the City of Laramie:

- 2.1. *Prioritize upgrades for police vehicles* to more efficient technology, including hybrid engines, to reduce emissions while idling. Department of Energy (DOE) reports that fuel consumption by parked police cruisers was 21% of the total fuel consumed in one study.⁷ Given the reduced costs of idling a hybrid engine compared to a gas engine, Ford motors claims that the savings from converting police vehicles with gas engines to hybrid vehicles will save \$3,500 per vehicle per year.⁸
- 2.2. *Consider purchasing Accessory Power Units* for all emergency vehicles to power equipment while stationary.⁹ Payback periods for accessory power packs are very short, with returns on investment being reached within just months to a few years because of fuel savings, according to DOE.¹⁰
- 2.3. *Consider purchasing other fleet vehicles* (e.g., cars and light-duty trucks, heavy-duty trucks such as garbage-collection trucks, buses, etc.) that are in line with this Green Fleet purchasing policy.¹¹

3. **REPLACE MAINTENANCE EQUIPMENT:** We recommend that the City of Laramie consider phasing out two-stroke engines for landscaping and other maintenance equipment (e.g., lawn mowers, leaf blowers, trimmers) in favor of cleaner electric or four-stroke engine options.¹² Salt Lake City provides an example of emissions reductions through a similar replacement initiative.
4. **CONTINUE IMPROVING FACILITY ENERGY EFFICIENCY:** We recommend that the City of Laramie continue to seek opportunities for energy efficiency upgrades. Existing audits, power usage information from invoices, and additional monitoring devices could be used to identify areas where efforts should be targeted and inform efficiency decisions. Where possible, consider cost and energy savings by shifting usage of high energy demand equipment and machinery to times of the day when rates are lower.
5. **INSTALL ROOFTOP SOLAR ON MUNICIPAL FACILITIES:** We recommend that the city invest in photovoltaic arrays installed on all eligible and feasible municipal building rooftops. Installation of photovoltaic systems can make a considerable difference in overall carbon emissions by the city, as well as work to offset at least part of the city's considerable energy costs. Given that solar panels are warranted for at least 25 years, and that solar panels continue to produce energy well

⁷ Eric Rask, et al., Argonne National Laboratory, Final Report: Police Cruiser Fuel Consumption Characterization, for the Illinois State Toll Highway Authority (February 2013)

⁸ <https://www.ford.com/police-vehicles/police-interceptor/hybrid-utility/calculator/>

⁹ For example, Moab, Utah has successfully implement Stealth Modules in their police fleet. See <https://www.stealthmodules.com/> for more information.

¹⁰ https://afdc.energy.gov/files/u/publication/idling_emergency-service_vehicles.pdf

¹¹ Electric and hybrid models of light- and heavy-duty trucks and buses are already available, with additional models nearing production. For commercial trucks, see <https://en.byd.com/truck/>. Ford will soon offer an electric F-150, <https://www.caranddriver.com/news/a28947992/electric-ford-f-150-2021-planned/>.

¹² As an example of alternative equipment, see Ego Power+ Commercial Series, <https://egopowerplus.com/>. Reference about pollution caused by two-stroke engines: Potera C. Asia's two-stroke engine dilemma. *Environ Health Perspect.* 2004;112(11):A613. doi:10.1289/ehp.112-a613a . <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1247506/>

past their warranted lifetimes, the city has the ability to reduce and control its energy costs for decades to come by installing photovoltaic systems wherever possible. Upfront costs for this investment can appear prohibitive, therefore we recommend looking into supplemental external funding options.¹³

6. **FACILITATE ROOFTOP SOLAR BULK BUY PROGRAM:** The City of Laramie should consider facilitating or co-facilitating a rooftop solar bulk buy program in order to encourage adoption of community solar energy. Bulk buy programs reduce costs for community members who wish to install photovoltaics by consolidating their purchasing power through a centralized point of contact. The City could partner with other entities to develop, facilitate, and promote the program and reduce the community carbon footprint.¹⁴

7. **REDUCE EMISSIONS FROM SOLID WASTE MANAGEMENT:** A large amount of the city's emissions are derived from solid waste management. We suggest the following as actions to reduce these overall associated emissions:
 - 7.1. Continue the current green waste program and expand it to include community composting solutions. Methane emissions could be lowered by reducing the quantity of organic matter that is decomposing in anaerobic conditions when buried in the landfill.¹⁵ A secondary benefit of diverting organic matter to composting is conserving landfill space.
 - 7.2. Support increasing recycling opportunities as a way to reduce landfill usage. Explore possibility of drop-off sites where citizens can sort their own recycling, providing increased marketability to recycling companies and increased accessibility to apartment dwellers.

8. **INCREASE NATURAL CARBON CAPTURE:**
 - 8.1. When landscaping and reclaiming disturbed areas, we recommend choosing plant species strategically for carbon-storage capacity. Consider native species with deep root systems, including perennial grasses, which pump CO₂ from the atmosphere and store biomass underground in their roots systems.
 - 8.2. Continue and expand opportunities for community gardens.

CONCLUSION

Cities across the U.S. must act quickly and decisively to reduce municipal and community GHGe emissions to a minimal level. Though emission reduction efforts present numerous challenges, many cities are meeting these challenges head on by actively developing thoughtful and innovative plans for emissions reductions. Over one hundred cities—ranging from Moab, UT to New York City, NY—have paved the way for emissions reductions at a municipal scale. Throughout this document, we have provided a suite of starting recommendations for the City of Laramie that incorporate and build off of the

¹³ Rocky Mountain Power's Blue Sky grant program provides funding for solar installations. 2020 grant applications can be found by visiting <https://www.rockymountainpower.net/community/blue-sky-projects/funding-applications.html>.

¹⁴ For example, a successful bulk buy program in Utah saved community members up to 25% on rooftop solar installation. The University of Utah facilitated the program, incurring minimal expenses of program promotion. After an RFP process, the contractor role was awarded to Creative Energies Solar.

¹⁵ <https://www.epa.gov/lmop/basic-information-about-landfill-gas>

valuable insights from other cities, while accounting for the unique situations presented in Laramie. Our recommendations vary in terms of effort required and amount of reductions accomplished; by including diverse recommendations, we are hopeful that Laramie will be able to act in the short term with small actions, leading to larger, longer-term changes to municipal operations and community efforts. Further, in addition to helping to reduce emissions, many of these recommendations are good fiscal decisions that could allow the City of Laramie and its citizens to reduce expenses. Though attaining a goal of net-zero emissions is a formidable endeavor, it is certainly a goal that Laramie is well-poised to achieve.